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HSIEN-YANG RADIO COMMUNICATIONS STATION, CHINA

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HSIEN-YANG RADIO COMMUNICATIONS STATION, CHINA

The Hsien-yang Radio Communications station [redacted] is located at 34-23-10N 108-41-45E, approximately 2.5 nautical miles north-northwest of Hsien-yang, China (Figure 1). The station is single fenced and consists of an operations area and a support area (Figures 2 and 3). It covers approximately 315 acres and has maximum dimensions of 4,650 by 2,950 feet. A review of photography of [redacted] indicates no change since [redacted]

The operations area contains 3 multistory transmitter buildings, 2 probable antenna-tuning houses, 2 unidentified structures, and 25 self-supporting lattice towers, each bearing a 45-foot-long crossarm. Table 1 provides detailed information on the various buildings at the station. The direction of cable scars from the transmitter buildings, and the location of probable transmission points near the probable antenna-tuning houses at two of the transmitter

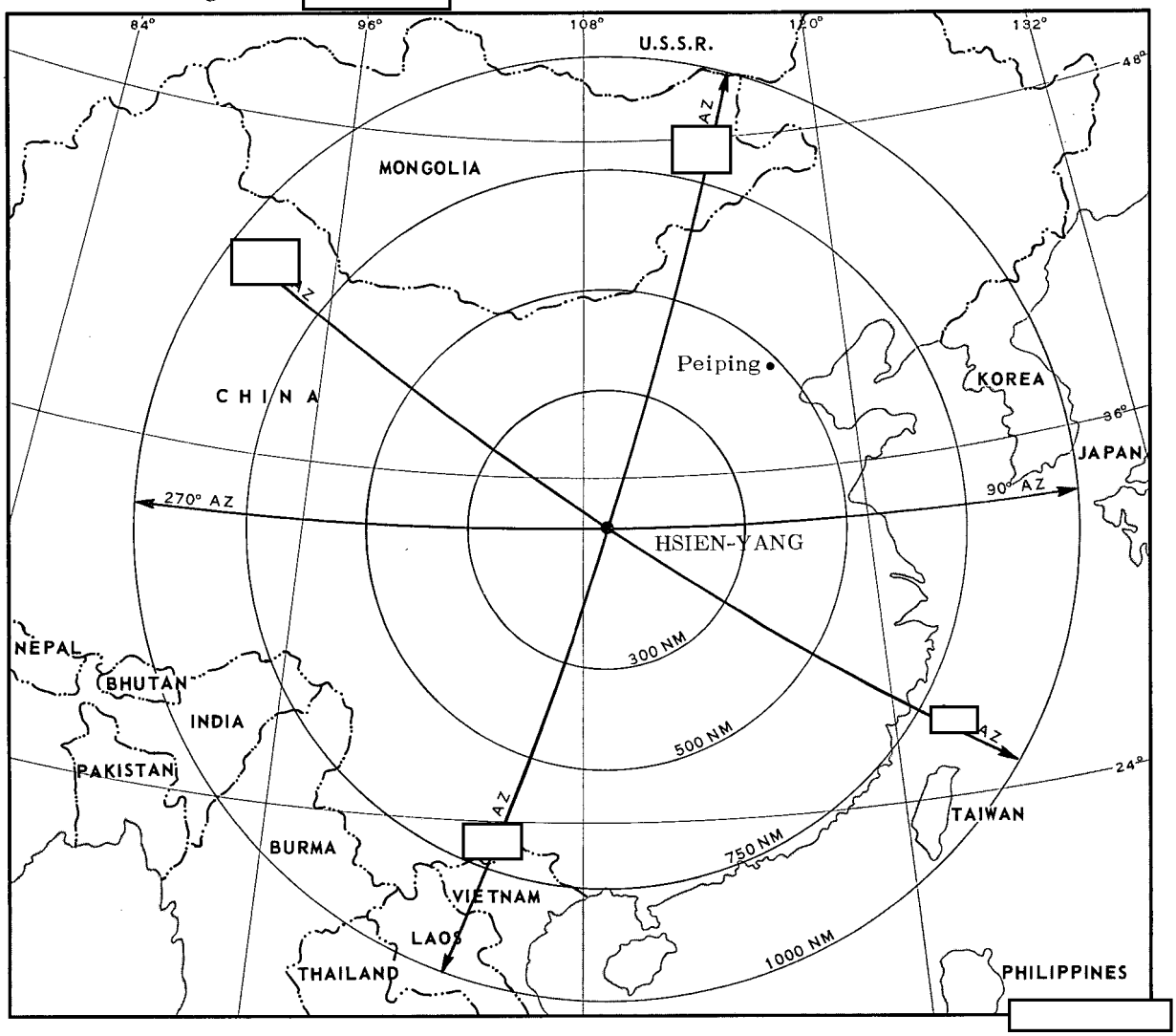

FIGURE 1. LOCATION OF HSIEN-YANG STATION, PLOTTED ON GNOMONIC PROJECTION, SHOWING PROBABLE DIRECTION OF TRANSMISSIONS.

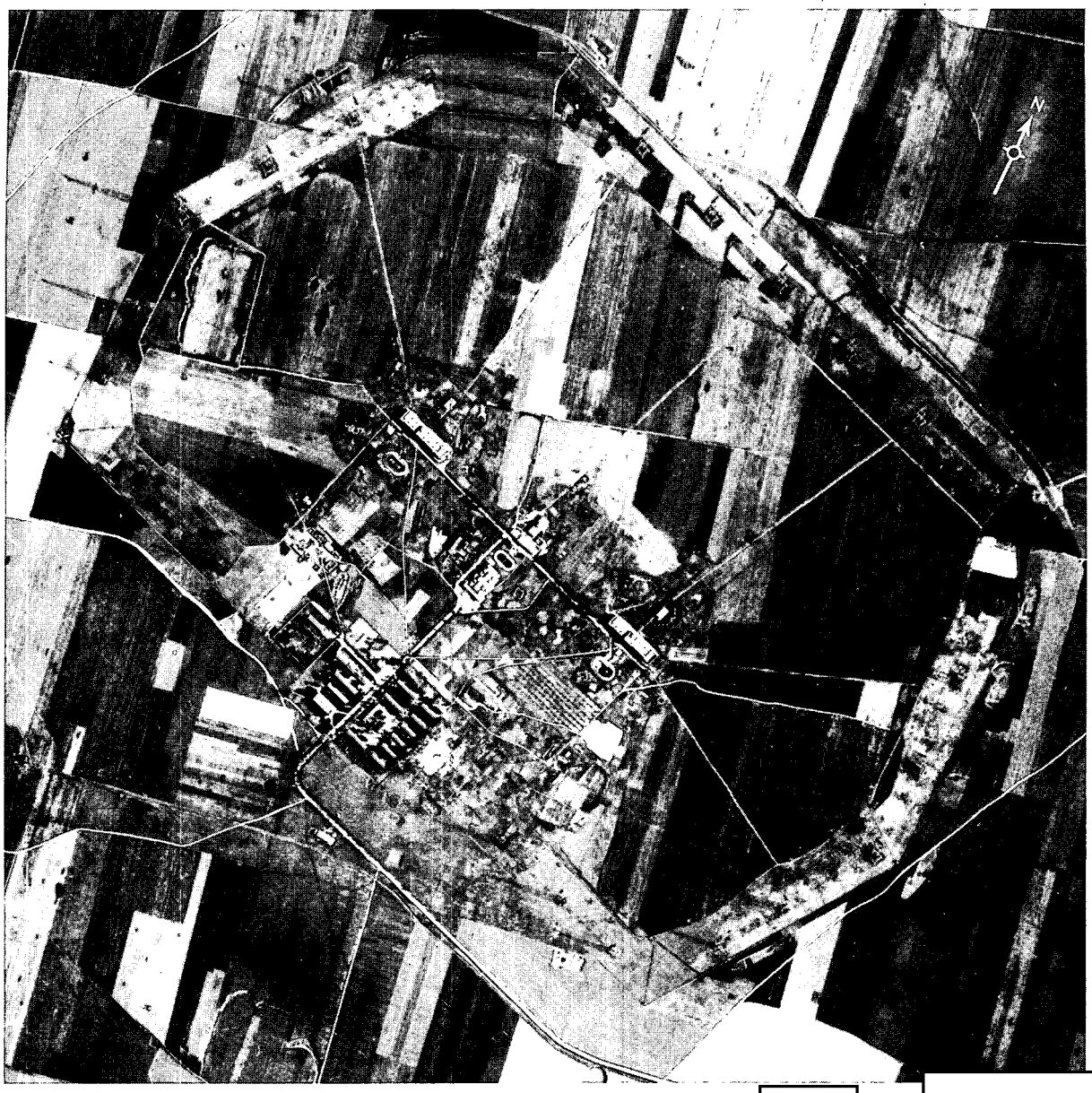

FIGURE 2. HSIEN-YANG RADIO COMMUNICATIONS STATION,

buildings (items 4 and 6), indicates that each of the transmitter buildings probably serves a separate group of antennas. Each transmitter building has an oval-shaped cooling pond which consists of an inner area 85 by 30 feet and an outer area 125 by 75 feet. Photography of reveals that all three cooling ponds contain water, but only one (that at item 5) is completely filled.

The 25 lattice towers support 20 high-frequency curtain arrays, and the crossarms on the towers indicate that each curtain array could have a reflector screen and/or beam switching capacity. Ground marks between the towers are probably vertical feed points. It is assumed that, if these feed points are connected by feed lines

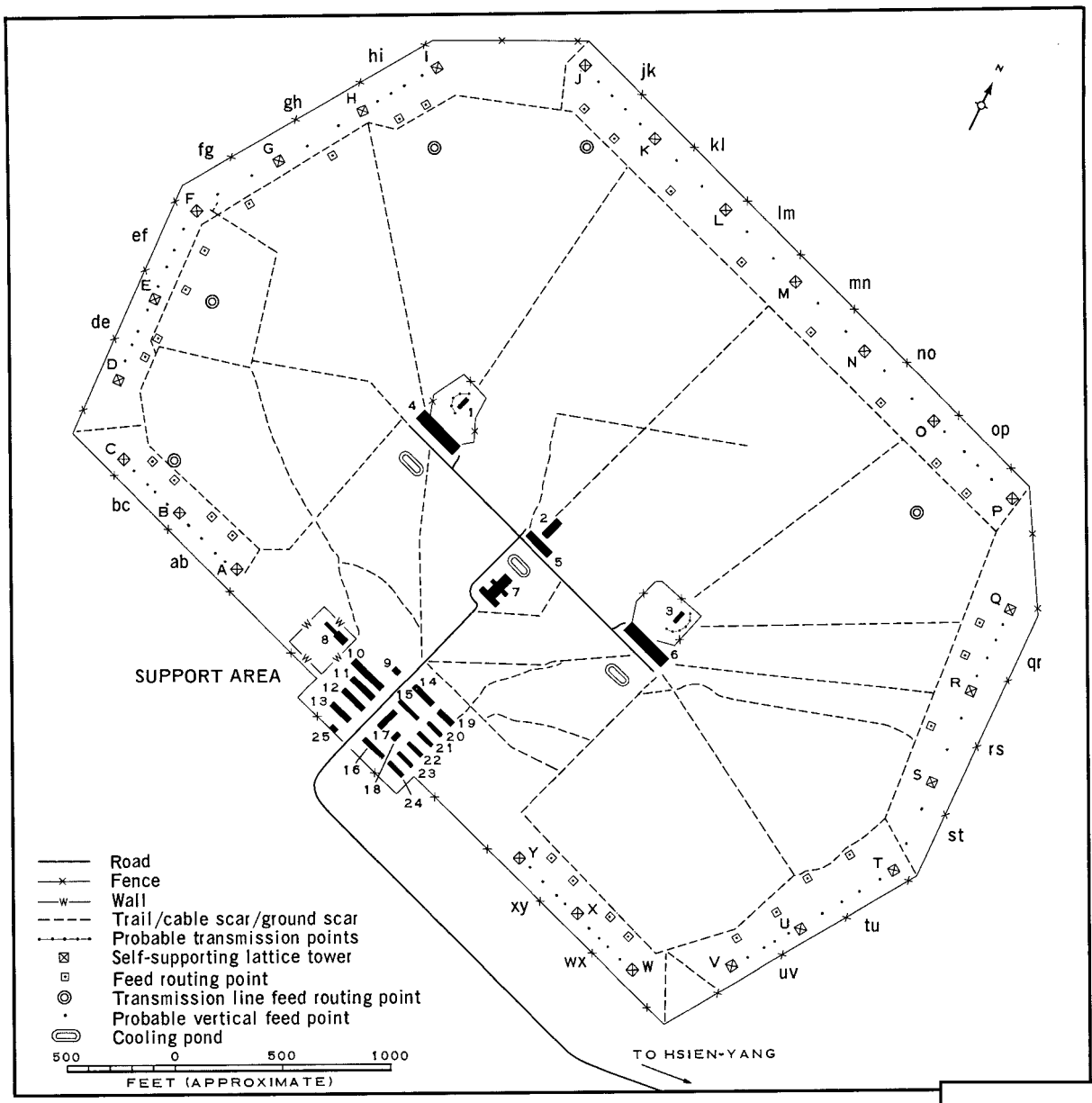

FIGURE 3. STATION LAYOUT AND FACILITIES.

to probable end-fed and/or center-fed, one-half-wavelength dipoles, then the curtain arrays should contain a total of 128 bays. It is also assumed that a bay is equal to a one-half-wavelength dipole. Table 2 gives the approximate frequencies, azimuths, and other data for the curtain arrays. A summary of this information, showing the number of bays of similar azimuth, height, and frequency is given in Table 3. Information on the lattice towers, contained in Table 4, was the basis for the information compiled on the curtain arrays in Table 2.

The support area consists of an administration building, 15 storage or barracks buildings, a probable security building, and a transformer building.

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Table 1. Data on Buildings

Building	Description	Dimensions (ft)	Function
Operations Area			
1	Single story, flat roofed	55 x 25	Secured, probable antenna-tuning house
2	Multistory, monitor roofed	105 x 40	Unidentified
3	Single story flat roofed	55 x 25	Secured, probable antenna-tuning house
4	Multistory, monitor roofed	250 x 50	Transmitter building
5	Single story, flat roofed	145 x 45	Unidentified
6	Multistory, monitor roofed	250 x 50	Transmitter building
7	Multistory, monitor roofed	145 x 105 (overall)	Transmitter building
Support Area			
8	Single story, flat roofed	125 x 35	Transformer building and power sub-station in 230' x 230' secured area
9	Single story, gable roofed	35 x 30	Probable administrative building
10	Single story, gable roofed	195 x 30	Storage or barracks building
11	Single story, gable roofed	140 x 20	Storage or barracks building
12	Single story, gable roofed	125 x 20	Storage or barracks building
13	Multistory, gable roofed	105 x 50	Probable barracks building
14-16	Single story, gable roofed	115 x 20	Storage or barracks building
17	Single story, gable roofed	105 x 30	Storage or barracks building
18	Single story, gable roofed	55 x 25	Storage or barracks building
19-24	Single story, gable roofed	90 x 20	Storage or barracks building
25	Single story, gable roofed	50 x 30	Probable security building

Table 2. Data on Curtain Antenna Arrays

Curtain Antenna Array*	Maximum Height of Curtain (ft)	Distance Between Towers (ft)	Azimuth (degrees)**	Number of Bays (half-wavelength dipoles)	Approximate Nominal Design Frequency (mc)***
ab	220	380	[redacted]	8	11-12****
bc	175	335		8	14-16
de	175	335		8	14-16
ef	295	470		8	9-11

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Table 2. (Continued)

Curtain Antenna Array*	Maximum Height of Curtain (ft)	Distance Between Towers (ft)	Azimuth (degrees)**	Number of Bays (half wave-length dipoles)	Approximate Nominal Design Frequency (mc)***
fg	365	440		4	5- 7
gh	365	440		4	5- 7
hi	220	380		8	14-16
jk	295	470		8	9-11
kl	365	470		4	5- 7
lm	365	440		4	5- 7
mn	365	440		4	5- 7
no	365	440		4	5- 7
op	295	470		8	8-10****
qr	220	380		8	14-16
rs	365	440		4	5- 7
st	365	440		4	5- 7
tu	295	490		8	8-10****
uv	175	345		8	14-16
wx	175	345		8	14-16
xy	220	380		8	11-12****

*Curtain antenna array designators are based on the letters on Figure 3 identifying the towers between which each array is suspended.
**See Figure 1.
***All frequency computations are based on the identification of the marks between towers as vertical feed points and the approximate distances between these points.
****Reliability uncertain.

Table 3. Summary of Information on Bays of the Same Azimuth, Height, and Frequency

Number of Bays	Curtain Antenna Array Designator	Azimuth (degrees)	Maximum Height (ft)	Approximate Nominal Design Frequency (mc)
16	kl, lm, mn, no		365	5- 7
8	op		295	8-10
8	jk		295	9-11
16	ab, xy		220	11-12
16	bc, wx		175	14-16
8	rs, st		365	5- 7
8	ef		295	9-11
8	de		175	14-16
8	qr		220	14-16
8	eg, gh		365	5- 7
8	tu		295	8-10
8	uv		175	14-16
8	hi		220	14-16

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Table 4. Data on Lattice Towers

Tower	Height of Tower (ft)	*Distance Between Towers (ft)	*Distance Between Feed Points and/or Towers (ft)
A	220	380	75, 85, 60, 85, 75
B	220	335	65, 70, 65, 60, 75
C	175		
D	175	335	75, 60, 65, 60, 75
E	295	470	95, 95, 90, 95, 95
F	365	440	135, 165, 140
G	365	440	140, 165, 135
H	365	380	80, 75, 70, 70, 85
I	220		
J	295	470	95, 95, 90, 95, 95
K	365	440	140, 165, 135
L	365	440	140, 165, 135
M	365	440	140, 165, 135
N	365	440	140, 165, 135
O	365	470	90, 110, 70, 110, 90
P	295		
Q	220	380	85, 70, 70, 70, 85
R	365	440	140, 165, 135
S	365	440	145, 160, 140
T	365	490	95, 110, 75, 110, 95
U	295	345	75, 65, 65, 65, 75
V	175		
W	175	345	70, 70, 60, 75, 70
X	220	380	75, 85, 60, 85, 75
Y	220		

*Beginning with tower 1 on Figure 2, these measurements run clockwise.

REFERENCES

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MAPS OR CHARTS

ACIC. US Air Target Chart, Series 200, Sheet 0384-15A, 2d ed, Jan 60, scale 1:200,000 (SECRET)

USAF. Special Gnomonic Tracking Chart GT44S(E), Nov 51, revised Feb 57 (CONFIDENTIAL)

REQUIREMENT

NSA. NSA/P043/R38-63(C)

PROJECT

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